**A-level Biology – Year 11 transition work**

**Quick questions**

**Cell structure**

1. Bacterium; (1)

2. One mark any of the following e.g. nucleus, cytoplasm, cell-surface membrane and mitochondria; (4)

3. Site of (aerobic) respiration / provide energy for the cell; (1)

4. There is a smooth outer membrane; folded inner membrane; (2)

5. **Two** from: nucleus, cell membrane, cytoplasm; (2)

6. Electron microscope; (1)

7. Glucose + oxygen ----> carbon dioxide + water (+ energy); (1)

8. Adenosine triphosphate / ATP; (1)

9. Cellulose; (1)

10. Phospholipids; protein molecules; (2)

11. Diffusion, osmosis, facilitated diffusion and active transport; (4)

12. Osmosis; (1)

13. Water potential; (1)

14. Carrier; channel (proteins); (2) Allow one mark for transport proteins.

15. To provide the energy needed for the process / movement of molecules against the concentration gradient; (1)

**Total 25 marks**

**Examination questions**

**Q1.**

(a)     W – (cell surface) membrane

X – cell wall

Y – capsule

Z – flagellum

*Four correct = 2 marks.*

*Three or two correct = 1 mark.*

*Y - Ignore references to slime/mucus*

*Y - Reject capsid*

*Z - accept flagella*

**2**

(b)     W - Phospholipids;

X - Murein / glycoprotein;

*X - Accept peptidoglycans.*

*Accept phonetic spellings*

**2**

(c)     Binary fission;

*Reject binary fusion*

**1**

(d)     8.64 × 105;;

*Accept 864 000 however expressed, e.g. 864 × 103*

*Allow one mark for*

*26 = 64*

***OR***

*64 / 26 × (1.35 × 104)*

**2**

**[7]**

**Q2.**

(a)     1.      Add drop of water to (glass) slide;

2.      Obtain thin section (of plant tissue) and place on slide / float on drop of water;

3.      Stain with / add iodine in potassium iodide.

*3.    Allow any appropriate method that avoids trapping air bubbles*

4.      Lower cover slip using mounted needle.

**4**

(b)     1.      **W** – chloroplast, photosynthesis;

2.      **Z** – nucleus, contains DNA / chromosomes / holds genetic information of cell.

**2**

(c)     1.      High resolution;

2.      Can see internal structure of organelles.

**2**

(d)     Length of bar in mm × 1000.

**1**

**[9]**

**Q3.**

(a)     X protein synthesis / translation;  
Y movement;

**2**

(b)     (i)cytoplasm;  
ribosomes;  
phospholipid membranes / cell membrane / semipermeable  
membrane;

*(accept folded membrane for two marks)*

**2 max**

(ii)     *(it = bacterium)*cell wall;  
capsule;  
flagellum;  
mesosome;  
no nucleus / nuclear membrane / DNA free;  
no mitochondria;

*(accept ‘no membrane-bound organelles’ if neither nucleus nor mitochondria mark scored)*

no microvilli;  
no Golgi;  
no ER;  
70S / smaller ribosomes;

**2 max**

**[6]**